UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,154	04/12/2005	I-Chih Kang	BAI525-208/08277	4685

24118   7590   11/09/2009
HEAD, JOHNSON & KACHIGIAN
228 W 17TH PLACE
TULSA, OK 74119

EXAMINER
KESSLER, GREGORY AARON

ART UNIT	PAPER NUMBER
2195	

MAIL DATE	DELIVERY MODE
11/09/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/531,154	KANG, I-CHIH
	Examiner	Art Unit	
	GREGORY A. KESSLER	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 April 2005*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-12* is/are pending in the application.
    4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☐ Claim(s) _____ is/are allowed.
6)☒ Claim(s) *1-12* is/are rejected.
7)☐ Claim(s) _____ is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *12 April 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.
    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
    a)☐ All   b)☐ Some * c)☐ None of:
        1.☐ Certified copies of the priority documents have been received.
        2.☐ Certified copies of the priority documents have been received in Application No. _____.
        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.
4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.
5)☐ Notice of Informal Patent Application
6)☐ Other: _____.

DETAILED ACTION

1.   Claims 1-12 are presented for examination.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly
claiming the subject matter which the applicant regards as his invention.

2.   Claims 1-12 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention.

        a.   The following terms lack antecedent basis:

                i.   The primary queue record – claim 6, 8

                ii.   The queue – claim 6, lines 9 and 12

                iii.   The entire queue – claim 7, line 2

                iv.   The reference to the previous branch - claim 11, line 5

        b.   The claim language of the following claims is not clearly understood:

                i.   As per claim 1, line 2, how is data provided by the at least one

        processing means?

                ii.   As per claim 1, line 9, and claim 5, line 9, it is unclear what is meant

        by a "branch record". Is this simply metadata about the queue?

                iii.   As per claim 1, line 12 and claim 5, line 12, it is unclear what

        location meant by "the same location of said memory means". For

purposes of this action, it is interpreted to mean the location in memory in which a particular queue resides.

iv.   As per claim 1, line 13, how do the branch records obtain a linked list? Where is this linked link coming from?

v.   As per claim 7, line 1, it is unclear what is meant by "the entire queue". Does this mean a single queue or the queue structure? For purposes of this action, it is assumed to mean any single queue.

vi.   As per claim 9, line 2, it is unclear what is meant by a task being "blocked". For purposes of this action, it is assumed to mean the task is idle until new data arrives.

Claim Rejections - 35 USC § 103

2.   Claims 1, 3, 5, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cohen, Richard, et al, "Event Management Service", European Patent Specification EP 0 759 591 B1, published 02/26/1997, hereinafter Cohen**, in view of Bonomi, et al (**U.S. Pat. No. 6219352 B1, hereinafter Bonomi**).

3.   <u>As per claim 1</u>, Cohen teaches the invention substantially as claimed, including a data processing apparatus, the data processing apparatus comprising:

at least one processing means being capable of providing data for further processing by the same or other processing means (Paragraph [0043], Lines 1-8 show an input queue that processes data before sending it to many consumer queues);

a queue structure comprising at least two branches between a producer task performed by a first processing means and a number of consumer tasks executed by at least a second processing means (Figure 6);

a memory means for storing data to be accessed by said consumer tasks, said memory means being shared between said at least two branches (Figure 6 shows that multiple consumer queues are each stored within the EMS, while Figure 7, Element 22 further shows that the EMS is located within RAM, thus demonstrating that all consumer queues are sharing the same memory space; Paragraph [0148], Lines 1-3); and

Cohen does not expressly teach a branch record means comprising a primary branch record for a primary branch between said producer task and a first consumer task and secondary branch records for secondary branches between said producer task and further consumer tasks, said branch records storing a pointer to the same location of said memory means and a reference to the next branch so as to obtain a linked list of branch records. However, Bonomi teaches a branch record means comprising a primary branch record for a primary branch between said producer task and a first consumer task and secondary branch records for secondary branches between said producer task and further consumer tasks, said branch records storing a pointer to the same location of said memory means and a reference to the next branch so as to obtain a linked list of branch records (Col. 4, Lines 12-18 teaches a linked list of data for the multiple consumer queues).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Bonomi with those of Cohen in order to allow for Cohen's apparatus to easily traverse the queues to determine where incoming data should be sent.

4.   As per claim 3, Bonomi teaches that each said branch record comprises a writer pointer denoting the producer task's position in the queue and a reader pointer denoting the consumer task's position in the queue, said writer pointer being identical for all branch records (Col. 4, Lines 19-22).

5.   As per claim 5, it is a method claim of apparatus claim 1. Therefore, it is rejected for the same reasons.

6.   As per claim 10, Bonomi teaches that a secondary branch is dynamically added to said queue structure by copying the primary branch's branch record into the new secondary branch's branch record and by adding a reference to the new secondary branch to the previously last branch's branch record (Col. 4, Lines 19-25).

7.   Claims 2 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen and Bonomi, as applied to claims 1 and 5 above, and further in view of Branth et al (**U.S. Pat. No. 6822958 B1, hereinafter Branth**).

8.   As per claim 2, Cohen and Bonomi do not teach that said secondary branch records further store a reference to the previous branch so as to obtain a double-linked list of branch records. However, Branth teaches that said secondary branch records further store a reference to the previous branch so as to obtain a double-linked list of branch records (Col. 10, Lines 18-20).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Branth with those of Cohen and Bonomi in order to allow for Cohen's and Bonomi's apparatus to more easily traverse through the list.

9.   As per claim 11, Cohen and Bonomi do not expressly teach that a secondary branch is removed from said queue structure by removing its secondary branch record from said queue record means and by updating the reference to the next branch stored in its predecessor branch's branch record so as to refer to the removed branch's successor branch and by updating the reference to the previous branch stored in its successor branch's branch record so as to refer to the removed branch's predecessor branch. However, Branth teaches that a secondary branch is removed from said queue structure by removing its secondary branch record from said queue record means and by updating the reference to the next branch stored in its predecessor branch's branch record so as to refer to the removed branch's successor branch and by updating the reference to the previous branch stored in its successor branch's branch record so as to refer to the removed branch's predecessor branch (Col. 15, Lines 26-30).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Branth with those of Cohen and Bonomi in order

to allow for Cohen's and Bonomi's apparatus to more easily traverse through the list.

10.   Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cohen and Bonomi, as applied to claim 1 above, and further in view of Katayama et al

(**U.S. Pat. No. 5938758, hereinafter Katayama**).

11.   <u>As per claim 4</u>, Bonomi teaches that the location for writing is identical for all

branch records (Col. 4, Lines 19-20). Cohen and Bonomi do not teach that each said

branch record comprises a writer counter denoting the producer task's position in the

queue and a reader counter denoting the consumer task's position in the queue.

However, Katayama teaches that each said branch record comprises a writer

counter denoting the producer task's position in the queue and a reader counter

denoting the consumer task's position in the queue (Col. 4, Lines 19-29).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Katayama with those of Cohen and Bonomi in

order to allow for Cohen's and Bonomi's apparatus to have an easy-to-implement

method of determining the locations to read from and write to in the queues.

12.   <u>As per claim 6</u>, Bonomi teaches the claimed limitations as follows:

reading a writer pointer or writer counter from said primary branch record (Col.

13, Lines 31-36);

reading reader pointers or reader counters from said secondary branch records

in the linked list (Col. 13, Lines 52-54);

incrementing said writer pointer or writer counter in the primary queue record

after writing a new data item in the queue by the producer task (Col. 13, Lines 40-45);

updating the value of the writer pointer or writer counter in the secondary branch

records (Col. 13, Lines 40-45); and

Cohen further teaches signaling to the consumer tasks attached to the queue the

change in the queue fullness and unblocking them in case they are in a blocked state

(Paragraph [0044], Lines 1-2).

Cohen and Bonomi do not expressly teach comparing said reader pointers or

reader counters with said writer pointer or writer counter to determine the amount of free

buffer space in the individual branches available for writing by the producer task.

However, Katayama teaches comparing said reader pointers or reader counters with

said writer pointer or writer counter to determine the amount of free buffer space in the

individual branches available for writing by the producer task (Col. 4, Lines 35-39);

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Katayama with those of Cohen and Bonomi in order to allow for Cohen's and Bonomi's apparatus to have an easy-to-implement method of determining the locations to read from and write to in the queues.

13.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen, Bonomi, and Katayama, as applied to claim 6 above, and further in view of Ichiriu (**U.S. Pat. No. 6707693 B1**).

14.   As per claim 7, Cohen, Bonomi, and Katayama do not expressly teach that the actual amount of empty buffer space available in the entire queue is indicated by the minimum amount of empty buffer space over all the branches and wherein the producer task is blocked when any of the branches is full. However, Ichiriu teaches that the actual amount of empty buffer space available in the entire queue is indicated by the minimum amount of empty buffer space over all the branches (Col. 31, Lines 50-55 teach determining the status of space available in the entire queue) and wherein the producer task is blocked when any of the branches is full (Col. 31, Lines 28-34).

It would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Ichiriu with those of Cohen, Bonomi, and Katayama in order to allow for Cohen's, Bonomi's, and Katayama's methods to have a

method of determining the fullness of their queues, in order to ensure that processing

systems are not overloaded by data they cannot yet handle, allowing for data to be lost.

15.   Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Cohen and Bonomi, as applied to claim 5 above, and further in view of Ichiriu.

16.   <u>As per claim 8</u>, Bonomi teaches incrementing said reader pointer or reader

counter in the associated branch record after reading a data item from the queue by a

particular consumer task (Col. 13, Lines 40-45).

        Cohen and Bonomi do not expressly teach reading a writer pointer or writer

counter and a reader pointer or reader counter from the associated branch record to

determine the number of available data items in the queue available for reading in a

particular branch by the associated consumer task and signaling to the producer task a

change in the queue fullness, thereby unblocking the producer task in case it is in a

blocked state. However, Ichiriu teaches reading a writer pointer or writer counter and a

reader pointer or reader counter from the associated branch record to determine the

number of available data items in the queue available for reading in a particular branch

by the associated consumer task (Col. 31, Lines 50-55) and signaling to the producer

task a change in the queue fullness, thereby unblocking the producer task in case it is in

a blocked state (Col. 29, Lines 25-27).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Ichiriu with those of Cohen and Bonomi in order to

allow for Cohen's and Bonomi's methods to have a method of determining the fullness

of their queues, in order to ensure that processing systems are not overloaded by data

they cannot yet handle, allowing for data to be lost.

17.   As per claim 9, Ichuriu teaches that the consumer task is blocked when its

associated branch is empty (Col. 31, Lines 9-12).

18.   Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cohen

and Bonomi, as applied to claim 5 above, and further in view of Branth, and still further

in view of Durante et al (**U.S. Pat. No. 5559988, hereinafter Durante**).

19.   As per claim 12, Cohen teaches removing a queue (Page 7, Line 28).

20.   Cohen and Bonomi do not expressly teach deleting a reference to the primary

branch record stored in the first secondary branch's branch record and by informing the

producer task of the deletion of the primary branch and the fact that the first secondary

branch has now become the primary branch. However, Branth teaches deleting a

reference to the primary branch record stored in the first secondary branch's branch

record (Col. 15, Lines 26-30).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Branth with those of Cohen and Bonomi in order

to allow for Cohen's and Bonomi's apparatus to more easily traverse through the list.

Cohen, Bonomi, and Branth do not teach informing the producer task of the

deletion of the primary branch and the fact that the first secondary branch has now

become the primary branch. However, Durante teaches informing the producer task of

the deletion of the primary branch and the fact that the first secondary branch has now

become the primary branch (Col. 9, Lines 1-2, 4-8).

It would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the teachings of Durante with those of Cohen, Bonomi, and Branth

in order to allow for more robustness in Cohen's, Bonomi's, and Branth's system by

allowing for the system to continue to function in the event that something happened to

the primary queue.

Conclusion

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to GREGORY A. KESSLER whose telephone number is

(571)270-7762. The examiner can normally be reached on Monday - Friday, 7:30 a.m. -

5:00 p.m., alternate Fridays, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Meng-Ai An can be reached on (571)272-3756. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Meng-Ai An/   /GREGORY A KESSLER/
Supervisory Patent Examiner, Art Unit 2195   Examiner, Art Unit 2195